The Role of Vendor Legitimacy in IT Outsourcing Performance: Theory and Evidence

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Appendix A: Trust and Legitimacy

Trust is a concept that has been studied extensively in inter-firm exchanges. In IT outsourcing, trust has been defined as "the predictability of…partners' behaviors" (Gulati 1995, p. 93) and "the confidence that the behavior of another will conform to one's expectations" (Lacity et al. 2010, p. 409). From the economic perspective, trust can be seen as "the opposite of opportunism" (Rustagi et al. 2009, p. 132). Trust serves as a contributor to interorganizational collaboration by providing a mechanism for mitigating opportunistic behavior, addressing ambiguity, and resolving conflicts (Goo et al. 2009; Gulati 1995). From the strategic perspective, the trustworthiness of exchange opportunities is viewed as a type of resource that represents a source of sustained competitive advantage (Barney 2001; Barney and Hansen 1994). The social perspective tends to focus on trust that is "more stable… [and] enduring" in comparison with the arguably "short-term" (Gainey and Klass 2003, p. 210) orientation and transactional nature of trust in the economic approach. From the psychological perspective, trust is part of the psychological contract between the exchange parties (Koh et al. 2004).

Trust, however, is substantively different from the concept of legitimacy. While definitions of trust focus on predictability, legitimacy relies on perceptions of desirability, properness, or appropriateness in a socially constructed system. The latest interdisciplinary study of trust and legitimacy (Shockley et al. 2016) suggests that while there have been extensive examinations of trust, an agreed-upon definition and in-depth understanding of legitimacy is much needed across different fields. In management, legitimacy has thus been related to "perception and judgment, manifested in actors' actions," evoking comparable concepts like 'acceptance' and 'endorsement'" (Bitektine 2011, p. 152). Legitimacy works through "institutionalized beliefs and action scripts" (Suchman 1995, p. 574).

A diverse set of literatures have also highlighted these key conceptual and theoretical distinctions between trust and legitimacy (Hawdon 2008; Jackson and Gau 2016). For instance, Jackson and Gao (2016) consider that trust focuses on "predictions about current and future behavior" while legitimacy focuses on "the property or quality of possessing" rightfulness (p. 51). Hawdon (2008) explicitly argues that legitimacy and trust are "conceptually distinct and…analytically separate…" (p. 182). Kaina (2008) also made a similar remark that trust and legitimacy are "quite different concepts that should not be used synonymously" (p. 510).

It is in this sense that legitimacy can be considered to be a broader abstraction than trust (Kumar and Das 2007). Indeed, the chronic uncertainties in the IT outsourcing environment today make it naturally harder for client organizations to effectively predict vendor behaviors (an important assumption related to trust), while legitimacy becomes crucial in that it operates at a deeper socio-cognitive level, fostering clients' beliefs in the consistency and competency of the vendor and the vendor's practices. Lack of vendor legitimacy implies that the client perceives that the quality of the relationship is in peril, a perception that could threaten subsequent positive outcomes. This echoes the argument of Kumar and Das (2007) that interorganizational performance necessarily depends on legitimacy, as "trust by itself may not be sufficient" (p. 1446) for guaranteeing relationship stability and an ultimately successful relationship.

Furthermore, our review of the outsourcing literature found that trust has been explicitly or implicitly assumed to be and measured as part of relational governance (Poppo and Zenger 2002; Goo 2009; Rai et al. 2012). For instance, Poppo and Zenger (2002) consider relational governance to be a composite factor including dimensions of "open communication and sharing of information, trust, dependence, and cooperation" (p. 715). Nonetheless, their measurements of relational governance did not explicitly include a specific item mentioning trust.

Goo et al. (2009) took a different approach by viewing trust and commitment "directly act[ing] as relational governance devices" (p.123). Indeed, Rai et al. (2012) distinctly identify information exchange, trust, and conflict resolution as key properties of relational governance. These studies offer a few glimpses into the diverse approaches that have been used to describe relational governance and its inclusion of trust in outsourcing management. In our research, we have adapted this approach, hence, with related measurements adopted from Poppo and Zenger (2002). This methodological decision is consistent with and reaffirms our argument that legitimacy is theoretically and conceptually different from trust implicitly assumed to be part of relational governance properties. Thus, by theorizing and empirically examining the role of legitimacy in ITO, our study challenges the

predominant thinking that trust is the only relational variable of note; indeed, our study further illuminates the multifaceted nature of outsourcing relationships (Lacity et al. 2010; Lee and Choi 2011; Lee and Kim 1999).

Prior research has analyzed trust from various perspectives, including transaction costs, resources, and socio-psychological variables and extensively studied the impact of trust on interfirm collaboration. Additionally, interdisciplinary studies of trust (Shockley et al. 2016) have been increasingly investigating the distinction between trust and legitimacy (Jackson and Gau 2016) while much work is still needed in other contexts. With regard to ITO, this study seeks to provide an alternate theoretical viewpoint, complementing the existing theoretical perspectives that include trust as a key element and to offer a substantive and in-depth theoretical articulation of the dynamics underlying interorganizational collaboration (Kumar and Das 2007). Our findings confirm the general belief that legitimacy advances interfirm partnership and enhances "the survival chances of collaborative endeavors" (Vlaar et al. 2007, p. 444) by capturing differing, nuanced types of legitimacy in the form of institutionalized beliefs, norms, and values and by revealing the implications of such legitimacy for both ITO governance and performance.

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Appendix B: Summary of Literature Review

- **Table B.1 Key Studies on ITO Governance Strategy and Performance**

Study	Governance Strategy	Theory	Research Method/Setting	Key Research Findings
Cao and Lumineau 2015	Contractual governance; relational governance	Transaction Cost Economics theory (TCE); Social Exchange Theory (SET); Relational Exchange Theory (RET)	Meta-analytic results from 33,051 inter-organizational relationships across 149 empirical studies	Their results indicate that contracts, trust, and relational norms jointly improve satisfaction and relationship performance and jointly reduce opportunism. These findings provide strong evidence for the complementarity arguments of the contractual–relational governance relationships and their joint impacts on performance. The study also finds that the mutual relationships between contractual and relational governance are moderated by the institutional environment, the inter-organizational relationship type and length, and contract type.
Gopal and Koka 2012	Formal contract (i.e., fixed price type/ time and material type); relational flexibility;	Incomplete contract; social process; risk perspective	A field study of 105 outsourcing projects conducted in a software services firm	The results show that relational flexibility positively affects profitability in only fixed price contracts, where the vendor faces greater risk, while positively affecting quality only in time and materials contracts, where the client is at greater risk.
Kim et al. 2013a	Explicitness of legal contract: partnership quality	Psychological contract perspective: psychological contract breach as the mediator	A field study using a matched data set in which each data point consisted of three responses: one from the project manager of a client firm, one from a vendor's consultant with whom the project manager cooperated, and one from a client firm's end-user of the delivered system	They find that the effects of explicit legal contracts and partnership quality on outsourcing outcomes are fully mediated by the client's perception of breaches of contract by the vendor.
Kim et al. 2013b	Contractual control; relationship strength	Governance effectiveness	A field study of 143 client companies of IT outsourcing	Their results suggest that both contract specification and relationship strength significantly influence governance effectiveness although contract specification impacts governance effectiveness more than does relationship strength. Governance effectiveness, in turn, mediates the effect of contract specification and relationship strength on three sub-dimensions of outsourcing performance: cost efficiency, performance improvement, and overall satisfaction.
Li et al. 2008	Formal control; social control	TCE; SET	A field study of Sino-foreign alliances and domestic alliances; transformational offshore outsourcing	The study finds evidence that there is a positive relationship between the social control mechanism and radical innovation; a negative relationship between social control and incremental innovation is another finding. Moreover, there is a positive relationship between formal controls and

				incremental innovation and a negative relationship between formal controls and radical innovation.
Poppo and Zenger 2002	Formal contract; relational governance; exchange hazards	Exchange hazards: TCE; social processes and norms	A field study of 285 outsourced services using a survey instrument	Results show that contracts and relational governance function as complements in explaining satisfaction with exchange performance in terms of overall cost, quality, and vendor's responsiveness.
Qi and Chau 2012	Relational dimension; contract dimension	SET; RET; TCE; Relational Governance Theory (RGT)	Case study - two descriptive case studies conducted in Hong Kong and mainland China	They find that both good relationships and contracts are necessary and effective governance mechanisms in managing IT outsourcing deals.
Rai et al. 2012	Contractual governance; relational governance	Incomplete Contracts theory	A field study of 335 business process outsourcing (BPO) ventures	Empirical evidence is amassed that both contractual and relational factors explain significant variance in BPO satisfaction, but relational factors dominate. By examining interactions between key contractual and relational mechanisms, the study found that elements of the two governance approaches operate as substitutes with respect to BPO satisfaction.
Srivastava and Teo 2012	Process control (mechanistic and relational governance); contract specification	Both transactional and relational perspectives	A field study of 160 offshore ISD projects executed by Indian vendors	Their results establish the significant complementary role of mechanistic governance on the relationships of contract specificity with both cost and quality as performance variables. Furthermore, mechanistic governance substitutes for the impact of relational governance on cost performance.

- **Table B.2 Theoretical Perspectives on ITO Relationships**

Theoretical Perspective	Key Assumptions and Theoretical Constructs	Sample Studies
Economic Perspective	- Encompasses transaction cost economics and agency theory - Examines design of safeguarding mechanisms for mitigating exchange hazards	Gefen et al. 2008; Handley and Angst 2015;Goo et al. 2009; Poppo and Zenger 2002; Rai et al. 2012; Rustagi and Kirsch 2008; Bahli and Rivard 2003; Choudhury and Sabherwal 2003
Strategic Perspective	- Views value, rarity, inimitability, and nonsubstitutability of resources as sources of competitive advantage - Investigates the creation, access, and deployment of resources through ITO	Cha et al. 2008; Goles 2003; Kotlarsky et al. 2014; Levina and Ross 2003; Ramasubbu et al. 2008; Roy and Aubert 2002

Social Perspective	- Emphasizes the importance of social interaction among actors in the client-vendor relationship - Highlights the role of bonding, communication, knowledge sharing, power, and mutual dependency	Heiskanen et al. 2008; Ho et al. 2003; Kern and Blois 2002; Kern and Willcocks 2000; Lee and Kim 1999; Olsson et al. 2008; Swar et al. 2012; Lee 2001
Psychological Contract Perspective	- Focuses on the client's and the vendor's psychological adherence to their respective obligations - Stresses the role of individuals' cognitive elements in shaping the outsourcing relationship	Ågerfalk and Fitzgerald 2008; Kim et al. 2007; Kim et al. 2013; Koh et al. 2004; Miranda and Kavan 2005
Legitimacy Perspective	- Concentrates on the perception of firm attributes and actions as legitimate, i.e., desirable and appropriate - Conceptualizes and identifies different forms of vendor legitimacy in outsourcing relationship dynamics	The present study

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Appendix C: Questionnaire Items

Instructions to respondents:

Please choose the most important IT outsourcing project conducted in your organization within the last 5 years and a specific external vendor involved in this project. Please ANSWER ALL the questions according to your IT outsourcing project with this chosen vendor.

Please indicate the extent to which you agree or disagree with the following statements about the status of Information Technology (IT) outsourcing governance strategy and perception of vendor legitimacy in your business.

In this questionnaire, IT outsourcing governance is defined as the mechanisms to oversee the coordination and interaction of various outsourcing activities between an organization and its vendor while vendor legitimacy is defined as the perception that actions and behaviors of a vendor in an outsourcing project are desirable, proper or appropriate with client organization's norms, values, beliefs and definitions.

Contractual Governance Strategy (Means/S.D.)

1. We try to establish the outsourcing relationship with our vendor through a detailed contract (4.45/1.306)
2. We collaborate with our vendor mainly based on the rules and terms specified in the contract (4.68/1.486)

Relational Governance Strategy (Means/S.D.)

1. We solve most problems with our vendor through discussion and mutual adjustment (4.49/1.434)
2. We are comfortable to share business information and knowledge with our vendor (4.58/1.267)
3. We try to reflect on our vendor's opinions to make our decisions (4.67/1.158)
4. We and our vendor are jointly responsible for problems and issues occurring in the outsourcing process (4.54/1.355)

Vendor Pragmatic Legitimacy (Means/S.D.)

1. We consider that the outsourcing process with our vendor is consistent with our expectations (4.56/1.275)
2. We think that our vendor behaves in a predictable manner in the outsourcing relationship (4.51/1.189)

Vendor Moral Legitimacy (Means/S.D.)

1. We believe that our vendor's behavior in the outsourcing relationship is morally acceptable (4.62/1.368)
2. We consider that our vendor behaves in a morally appropriate manner in the outsourcing relationship (4.41/1.282)
3. We believe that our vendor tries to treat different ethics and norms properly in the outsourcing relationship with us (4.65/1.207)

Vendor Cognitive Legitimacy (Means/S.D.)

1. We believe that outsourcing to our vendor is meaningful (4.61/1.216)
2. We think that it is necessary to have an outsourcing relationship with our vendor (4.58/1.370)
3. We consider that the relationship with our vendor is natural (4.60/1.383)
4. We take it for granted that we should maintain the outsourcing relationship with our vendor (4.53/1.365)

Outsourcing Value Capture (Means/S.D.)

1. By conducting this outsourcing project, we have enhanced the deployment of our technological resources (4.68/1.420)
2. By conducting this outsourcing project, we have achieved better control of our IT expenses (4.41/1.185)
3. By conducting this outsourcing project, we have enhanced our IT capability (4.60/1.454)

Outsourcing Value Creation (Means/S.D.)

1. By conducting this outsourcing project, we have been able to induce innovation (3.39/1.482)
2. By conducting this outsourcing project, we have been able to create new and novel knowledge (3.48/1.286)
3. By conducting this outsourcing project, we have been able to develop innovative solutions to create value (3.55/1.327)

Appendix D: Basic Approach for Instrument Development and Validation

• D.1 Instrument Validation Prior to Primary Data Gathering

As a first step, a questionnaire based on the previous literature was prepared. Due to the lack of previous measures for vendor legitimacy, we created all items from scratch by converting conceptual definitions of the constructs in the existing literature into questionnaire items. For example, ITO governance strategy (contractual and relational governance strategies) arises primarily from the work of Heide (1994), Poppo and Zenger (2002), and Yang et al. (2012).

Our measures for governance strategy do not just capture the client's perception of "my actions," but the client perception of the actions that they take together with the vendor. This spirit is exemplified in our carefully validated survey items, such as "We collaborate with our vendor mainly based on the rules and terms specified in the contract," "We solve most problems with our vendor through discussion and mutual adjustment," and "We and our vendor are jointly responsible for problems and issues occurring in the outsourcing process," Our argument is that these measures reasonably capture the degree to which the outsourcing vendor works with the client based on the corresponding governance strategies, consistent with existing literature. Prior research has also commonly adopted this approach to capture the extent of governance practices that a client firm takes together with its vendor by surveying client perceptions (Poppo and Zenger 2002; Swar et al.2012 Rai et al. 2012). That is, while data was gathered from the client, what this data actually (and most often) describes is the vendor's behavior/actions. Table D-2 shows how the items for both governance strategies in our instrument try to capture, at times, the interaction between vendor and client and, at other times, the direct actions of the vendor. Granted that primary data from the vendor would have been interesting as a point of comparison to these client perceptions, a new threat emerges from both social desirability and self-reported biases inherent in vendor-gathered data (Burton-Jones 2009). Our view is that the perspective best suited to describe the vendor actions is the client, whose sense of vendor legitimacy, after all, is the whole point of our study.

The measures of the three legitimacy variables were grounded in conceptual papers by Suchman (1995) and Kumar and Das (2007), but, w/r/t the two dependent variables, we drew on the work of Miranda and Kavan (2005) and developed measures for both value capture and value creation. Self-report measures were chosen since we believe that top IT managers have reasonable information about and a valid perspective on both value capture and creation in outsourcing (Mani et al. 2010; Peppard et al. 2000).

Since most of measures were not based on previously validated instruments, it was necessary to have several rounds of pre- and pilot tests. Before distribution, the survey was finalized with several rounds of pre-tests to ensure the clarity of the question items and the preciseness of the language used. Rigorous steps were taken to ensure the reliability and validity of the questionnaire.

The paucity of measures in prior literature for the constructs adopted in this study (IT outsourcing governance, vendor legitimacy, value capture and value creation) prompted us to develop new measures for items using the simplified card sorting method (Moore and Benbasat 1991). For content-validity, the study referred to the conceptual definitions of the constructs (please see key references in Table D-1) where eight and nine candidates in the form of nouns and verbs were derived. As a first step of the card sorting, we prepared 3 by 5-inch cards, each containing one word from the table, and asked 10 graduate students majoring in information systems in a major university in Korea to sort the cards in the order of the meaning closest to each construct. For construct validity, we defined the original concepts behind the constructs used in the study but did not directly mention the construct names to avoid bias on the part of the respondents. As a second step in the card sorting, the top five and six words from the previous step were selected and converted into full sentences. Then, we asked 15 graduate students at the same school to select one, two, or three sentences with isolated meanings from the others. After conducting the two steps of card sorting, five items for each construct were finalized.

When creating the measurement instrument, the multiple-item scale was a fully anchored seven-point Likert scale varying from "strongly disagree" to "strongly agree," with 7 anchoring the strongly agree response. After drafting the initial version of the questionnaire, 15 professionals (9 scholars and 6 practitioners) well versed in the area of IT governance assessed the content validity of the items and also provided feedback on the overall nomology. Based on the comments gathered from these professionals, the questionnaire was intensively refined

and restructured. The operational definitions of the constructs used and the relevant studies appear in Table D-1.

Table D-1. Operational Definitions of Constructs

Constructs	Operational Definitions	Key References
Contractual governance	The degree of the use of formal contracts with the specification of expected performance and obligations in the outsourcing arrangement	Heide 1994, Lee et al. 2004
Relational governance	The degree of the use of information sharing and relational norms in the outsourcing arrangement	Poppo and Zenger 2002, Yang et al. 2012
Vendor pragmatic legitimacy	The degree of the client perception of vendor's desirable behavior in the outsourcing relationship	Dacin et al. 2007, Kumar and Das 2007, Suchman 1995
Vendor moral legitimacy	The degree of the client perception of vendor's rightness and fairness in the outsourcing relationship	Dacin et al. 2007, Kumar and Das 2007, Suchman 1995
Vendor cognitive legitimacy	The degree of the client perception of the outsourcing relationship with vendor being natural and taken-for-granted	Dacin et al. 2007, Kumar and Das 2007, Suchman 1995
Outsourcing performance	The degree of realizing the expected outsourcing outcomes in terms of operational efficiency and innovation - Value capture: The degree of outsourcing outcome on operational efficiency and IT capability improvement dimensions - Value creation: The degree of outsourcing outcome on innovation induction and new knowledge creation dimensions	Miranda and Kavan 2005

Table D-2. How Vendors Behaviors are Captured in the Contractual and Relational Governance Constructs

Constructs/Instrument Items	How Client-Vendor Interactions and Direct (Independent) Vendor Behaviors are Being Referenced by the Instrument Items
Contractual Governance Strategy	
1.We try to establish the outsourcing relationship with our vendor through a detailed contract.	**Interactions and Direct Vendor Behaviors:** Contracts must be signed and agreed to by both parties, that is, through an interaction, in an exchange relationship. This item also represents the independent, direct vendor behaviors that are detailed in the outsourcing contract.
2.We collaborate with our vendor mainly based on the rules and terms specified in the contract.	**Interactions:** In that collaboration clearly requires the involvement of both parties, this item measures the extent to which the client and vendor behave and collaborate in accordance with rules and terms specified in the contract.
Relational Governance Strategy	
1. We solve most problems with our vendor through discussion and mutual adjustment.	**Interactions:** As defined in Cambridge dictionary, discussion is "the activity in which people talk about something and tell each other their ideas or opinions." Thus, this item measures client-vendor interactions in problem-solving.
2.We are comfortable to share business information and knowledge with our vendor.	**Direct Vendor Behaviors:** We adapted this item from the original items in Yang et al. (2012). These were: "We always share supply and demand forecasts" and "Proprietary information is shared with each other." They used these items to measure the behaviors of "the exchange partners" (p. 46). Like ours, their instrument was also only answered by the buyer. The "vendor behavior," in this case, is the independent reception of, and presumably the use of shared information, two forms of vendor behavior.
3. We try to reflect on our vendor's opinions to make our decisions.	**Interactions:** The item measures the extent to which both client and vendor's viewpoints are included in the discussion and decision-making process. It is in this sense that the vendor's opinions can be thought of as an interaction with the client.
4. We and our vendor are jointly responsible for problems and issues occurring in the outsourcing process.	**Interactions:** We adapted the term "joint responsibility" from Yang et al. (2012) to measure the client perception of the actions that they take together with the vendor in their ongoing interactions.

As a second step, a pretest was conducted with five IT outsourcing managers with significant expertise in the area of IT outsourcing governance. The purpose of the pretest was to exercise the wording, the ease with which the questionnaire could be answered, the appropriateness of the question sequence, and consistency in meaning. The pre-test also helped in qualitatively validating the scales. Based on the comments gathered from these interviews, seven of the 35 items (viz., three items from two IVs, three items from three mediating variables, and one item from value capture) were dropped to improve the content validity of the questionnaire. Once the content of the survey instrument had been so refined, backward translation (with the material translated from English into Korean, then back to English, then comparison of versions, and finally discrepancy resolution) ensured consistency between the Korean and the original English version of the instrument (Mullen 1995; Singh 1995).

Finally, a pilot test was conducted to assess construct validity with 45 managers in 45 Korean companies highly familiar with IT outsourcing practices. The respondents were CIOs or the persons in charge of the IT units. Responses from these 45 managers were analyzed via factorial validity (both convergent and discriminant validity) and item-to-construct correlations (Straub et al. 2004). Although item-to-construct correlation scores for most items were higher than 0.6, three items that had scores lower than 0.6 were dropped (one from value creation, one from value capture, and one from vendor pragmatic legitimacy). In addition, during the factor analysis, another four items that had factor loadings lower than 0.5 were eliminated (one from vendor moral legitimacy, one from vendor pragmatic legitimacy, one from contractual governance, and one from value creation).

With 21 final items, the reliability of the scales was then assessed. The resulting Cronbach's alpha values ranged from 0.806 to 0.947, which were deemed to be acceptable (Nunnally and Bernstein 1994). The final questionnaire items are listed in Appendix C.

- **D.2. Measures and Tests to Capture the Causal Linkage Between Governance and Legitimacy**

How specifically do client beliefs lead to better performance by the vendor? The measures for governance strategy do not just capture the client's perception of "my actions," but client perception of the actions that they take together with the vendor (interactions) and independent actions that the vendor takes directly.

This spirit is exemplified in the carefully validated survey items such as "We collaborate with our vendor mainly based on the rules and terms specified in the contract," "We solve most problems with our vendor through discussion and mutual adjustment," and "We and our vendor are jointly responsible for problems and issues occurring in the outsourcing process." The basic argument is that these measures reasonably capture the degree to which the outsourcing vendor works with the client based on the corresponding governance strategies, consistent with existing literature. When vendors work closely with clients, the impression the clients have of the vendor's legitimacy will naturally be conveyed to the vendors and this will impact how well the vendors respond in fulfilling their tasks. Hence, this mechanism will lead to performance effects. Prior research has also commonly adopted this approach to capture the extent of governance practices that a client firm takes together with its vendor by surveying client perceptions (Poppo and Zenger 2002; Swar et al.2012; Rai et al. 2012).

To ensure that this causal connection is not a function of overly-optimistic client perceptions, a robustness check was also instituted. In a separate model, financial performance drawn from archival data were used as surrogates for self-reported perceptions of the clients (value creation and value capture). Given the very similar results in the model based on archival data to the model based on self-reported data, the evidence is strong that client beliefs about governance strategies and vendor legitimacy predict how well the partnership is working. This represents a form of nomological validity that is described in Straub et al. (2004).

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Appendix E: Comparison between Different Groups

- **E.1 Group with Vendors not Overlapping (n=140) vs. Group with Vendor Overlapping (n=55)**

Means (S.D.) for vendors not overlapping and vendors overlapping groups were 4.621 (1.228) vs 4.453 (1.261) for contractual governance, 4.524 (1.232) vs 4.558 (1.290) for relational governance, 4.465 (1.175) vs 4.534 (1.207) for pragmatic legitimacy, 4.429 (1.175) vs 4.452 (1.212) for moral legitimacy, 4.547 (1.121) vs 4.598 (1.223) for cognitive legitimacy, and 4.187 (0.951) vs 4.216 (0.814) for outsourcing performance. T-test results were t=0.760 for contractual governance, t=-0.326 for relational governance, t=-0.356 for pragmatic legitimacy, t=-0.659 for moral legitimacy, t=0.214 for cognitive legitimacy, and t=-0.893 for outsourcing performance. Thus, the results showed no differences between them.

- **E.2 Group from the First Mailing (n=112) vs. Group from the Second Mailing (n=83)**

For the early response group, means (S.D.) for vendors not overlapping and vendors overlapping groups were 4.667 (1.182) vs 4.685 (1.134) for contractual governance, 4.424 (1.185) vs 4.476 (1.275) for relational governance, 4.541 (1.174) vs 4.492 (1.196) for pragmatic legitimacy, 4.496 (1.238) vs 4.575 (1.253) for moral legitimacy, 4.689 (1.232) vs 4.623 (1.289) for cognitive legitimacy, and 4.103 (0.972) vs 4.147 (0.894) for outsourcing performance. T-test results were t=-0.051 for contractual governance, t=--1.183 for relational governance, t=-0.275 for pragmatic legitimacy, t=--0.653 for moral legitimacy, t=0.332 for cognitive legitimacy, and t=--0.012 for outsourcing performance. For the late response group, means (S.D.) for vendors not overlapping and vendors overlapping groups were 4.543 (1.275) vs 4.322 (1.289) for contractual governance, 4.644 (1.195) vs 4.581 (0.988) for relational governance, 4.610 (1.124) vs 4.760 (1.021) for pragmatic legitimacy, 4.254 (1.112) vs 4.367 (1.193) for moral legitimacy, 4.610 (1.022) vs 4.590 (1.154) for cognitive legitimacy, and 4.042 (0.799) vs 4.531 (0.935) for outsourcing performance. T-test results were t=-0.989 for contractual governance, t=--0.095 for relational governance, t=-0.812 for pragmatic legitimacy, t=--0.531 for moral legitimacy, t=-0.189 for cognitive legitimacy, and t=--1.672 (significant at the level of 0.10) for outsourcing performance. Thus, results of the T-tests showed no significant differences in the early response group and only one significant difference in the late response group

- **E.3 Group with the Final Sample (n=185) vs. Group with the Complete Sample but Excluded (n=49)**

Means (S.D.) for the final sample and the complete sample but excluded groups were 4.565 (1.180) vs 4.325 (1.232) for contractual governance, 4.576 (1.150) vs 4.378 (1.244) for relational governance, 4.537 (1.237) vs 4.419 (1.193) for pragmatic legitimacy, 4.567 (1.104) vs 4.411 (1.209) for moral legitimacy, 4.585 (1.097) vs 4.457 (1.123) for cognitive legitimacy, and 4.548 (1.132) vs 4.384 (0.945) for outsourcing performance. T-test results were t=0.521 for contractual governance, t=-0.451 for relational governance, t=-0.248 for pragmatic legitimacy, t=-0.257 for moral legitimacy, t=0.269 for cognitive legitimacy, and t=-0.411 for outsourcing performance. Thus, the results showed no differences between the two groups.

Appendix F: Testing Basic Assumptins

Before analyzing the AMOS model, assumptions of independent observations and univariate/multivariate normality should be examined (Arbuckle 2011; Gefen et al. 2011). First, observations should be independent. As in case of this study, the mailing of surveys to individuals in different organizations gives us reasonable assurance that observations are independent. Also, the use of a commercial mailing list can be taken to be a random sampling of respondents within this sampling frame. Second, all observed variables meet distributional requirements.

Second, to ascertain the univariate normality of each variable, means (3.654~4.733), standard deviations (0.929~1.834), kurtosis (-0.821~0.052) and skewness (-0.465~0.353) were calculated. In addition, univariate normality was examined through three methods: (1) a normal q-q plot was created for each variable and a visual check of all normal plots appears to indicate that the data are approximately normal; (2) a simple histogram of each variable was prepared and all variables displayed a central tendency with their peak Kolmogorov-Smirnov (K-S) frequencies somewhere in the middle of the distribution; and (3) the K-S test for normality was performed on all variables. With regard to the final test, all variables passed with a p-value less than 0.01. These results suggest that all of the variables analyzed showed acceptable kurtosis and skewness.

Finally, the seven observed variables were assessed for multivariate normality. While multivariate skewness should not affect CB-SEM results, excessive levels of multivariate kurtosis can have a deleterious impact on global model fit tests and parameter standard errors (Yuan et al. 2005). Therefore, it is important to assess this prior to fitting structural equation models. Mardia's measure (1974) of multivariate kurtosis and a companion Z-test evaluating the significance of the multivariate kurtosis were computed. The Mardia value was 4.89 ($Z=2.67$, $p<0.01$), indicating that the assumption of multivariate normality was tenable.

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Appendix G: Measurement Model Results

The first step was to estimate the measurement model using AMOS 20.0. Overall, the resulting fit indices suggest an acceptable fit, as summarized in Table G-1(a). Nearly all indices were at or above suitable levels (Gefen et al. 2011). They were: (Chi-square/degree of freedom ($\chi 2$ /df)=1.263; Goodness of Fit Index (GFI)=0.915; AGFI=0.897; Normed Fit Index (NFI)=0.942; Tucker-Lewis Index (TLI)=0.987; Root Mean Square Error of Approximation (RMSEA)=0.045; Standardized Root Mean Residual (SRMR)=0.065). In addition to evaluating each index independently, we followed a strict combination rule proposed by Hu and Bentler (1999), which has the advantage of controlling Type I and Type II errors, simultaneously: (1) SRMR < 0.08 and (2) either CFI > 0.95 or RMSEA < 0.06. Results in Table G-1(a) show that indices of the measurement model comply with the combination rule, further supporting the acceptability of the measurement model.

Table G-1. Results of the Measurement Model Analysis

(a) Goodness of fit for the Measurement Model

Fit Indices	$\chi 2$	df	$\chi 2$ /df	GFI	AGFI	NFI	RMSEA	SRMR	IFI	RFI	TLI	CFI
Observed Value	221.04	175	1.263	0.915	0.897	0.942	0.045	0.065	0.986	0.939	0.987	0.982
Desired Value	-	-	< 3	> 0.9	> 0.9	> 0.9	< 0.08	< 0.08	> 0.9	> 0.9	>0.9	> 0.9

(b) Comparison of AVE and Squared Correlations

Construct	1	2	3	4	5	6	7
1. Value Capture	**0.759**						
2. Value Creation	0.155*	**0.882**					
3. Pragmatic Legitimacy	0.323**	-0.011	**0.824**				
4. Moral Legitimacy	0.545**	0.135	0.481**	**0.805**			
5. Cognitive Legitimacy	0.071	-0.086	0.204	0.078	**0.859**		
6. Contractual Governance	0.473**	0.179**	0.342**	0.465**	0.129	**0.741**	
7. Relational Governance	0.245**	0.398**	0.182*	0.328**	-0.021**	0.187**	**0.727**

. Note: Numbers in the grayed diagonal represent each construct's average variance extracted; * p < 0.05; ** p < 0.01

(c) Assessment of Reliability and Validity

Construct	Item	Cronbach's Alpha	Composite Reliability	Average Variance Extracted	Estimate	Standardized Estimate	T-statistic
Value Capture	Val_Cap1	0.815	0.805	0.581	1.164**	0.824	9.227
	Val_Cap2				1.146**	0.781	8.781
	Val_Cap3				1.000	0.756	-
Value Creation	Val_Cre1	0.939	0.909	0.766	1.125**	0.932	23.876
	Val_Cre2				1.034**	0.929	24.732
	Val_Cre3				1.000	0.930	-
Pragmatic Legitimacy	Leg_Prg1	0.859	0.807	0.697	1.054**	0.898	14.687
	Leg_Prg2				1.000	0.862	-
Moral Legitimacy	Leg_Mor1	0.897	0.851	0.655	0.948**	0.839	16.211
	Leg_Mor2				1.044**	0.862	16.639
	Leg_Mor3				1.000	0.890	-
Cognitive Legitimacy	Leg_Cog1	0.951	0.926	0.757	0.913**	0.819	21.271
	Leg_Cog2				0.826**	0.802	16.859
	Leg_Cog3				1.018**	0.996	69.236
	Leg_Cog4				1.000	0.991	-
Contractual Governance	Gov_Hie1	0.824	0.725	0.558	1.129**	0.909	8.020
	Gov_Hie2				1.000	0.754	-
Relational Governance	Gov_Net1	0.919	0.818	0.549	1.047**	0.645	42.390
	Gov_Net2				1.379**	0.999	12.023
	Gov_Net3				1.321**	0.991	12.093
	Gov_Net4				1.000	0.686	-

. Note: ** p < 0.01

For the measurement model, all constructs except outsourcing performance (a formative second-order, reflective first-order construct consisting of two second order factors, value capture and value creation) were determined to be reflective. Based on rules suggested by Jarvis et al. (2003) to identify measures of a construct as reflective or formative, it was apparent that outsourcing performance is best conceptualized here as formative at the second order level. The weights (for formative items), loadings (for reflective items) and their t-values of all the constructs are shown in Table G-1(c).

As indicated in Table G-1, all unidimensional and first-order constructs in the proposed model fit the characteristics of reflectively-measured constructs according to Petter et al. (2007). Scores for value capture and value creation at the first order level were created via Smart PLS's repeated indicator approach (weighted averages created in version 3.0) and then these scores were used in the AMOS analysis (Hair et al. 2014; Ringle et al. 2012). To validate these reflective measures and sub-constructs, four types of validity were assessed: content validity, reliability, convergent validity, and discriminant validity. First, content validity refers to the representativeness and comprehensiveness of the items used to create a scale (Straub et al. 2004). It is assessed by examining the representativeness of the scale items (Straub 1989). Content validity of the instrument was established not only by ensuring the consistency between the measurement items and the extant literature, but also by having several rounds of pre-tests and pilot tests for newly developed measures (Straub et al. 2004). After following this process, we concluded that our scales were content-valid.

With regard to the next two forms of validation, reliability was assessed for all first-order constructs or sub-constructs via Cronbach's alpha and composite reliability. Convergent validity was assessed through the average variance extracted (AVE) of each latent construct or sub-construct (Barclay et al. 1995). As shown in Table G-1(c), Cronbach's alpha and composite reliability values were all higher than the recommended level 0.7 (Nunnally and Bernstein 1994). Moreover, the raw AVE values of our measures were all above 0.5 (Fornell and Larcker 1981), likewise supporting convergent validity.

Fourth, discriminant validity was verified by comparing the square root of the AVE to other correlations in the same matrix row and column (Fornell and Larcker 1981). As shown in Table G-1(b), the results show that the square root of the AVE of every construct in the measurement model is greater than comparative correlations, supporting discriminant validity with no violations. Additionally, the results of the inter-construct correlations indicate that each construct shared a larger shared variance with its own measures than with other measures.

One of the best tests of the convergent validity of the second-order formative items is the significance of the weights with respect to forming the latent construct (Cenfetelli and Basselier 2009). In our case, these were 0.397 (value capture) and 0.854 (value creation) and both were significant at the 0.01 level, as shown in Figure 2. The convergent validity of the formative elements in the model was thus supported. Based on all these results, we concluded that the measurement model demonstrates acceptable construct validity and reliability.

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Appendix H: Endogeneity Tests

• H.1 Durbin-Wu-Hausman Test

To examine whether contractual governance and relational governance are endogenously determined, we deployed the standard Durbin-Wu-Hausman method to test whether endogeneity is an issue in our context (Davidson and MacKinnon 1993; Dong et al. 2017). In this process, internal hierarchical IT governance and internal network IT governance were introduced as instrumental variables for contractual governance and relational governance, respectively.

These two instrumental variables are reasonable because they do meet the criteria (Pindyck and Rubinfeld 1999; Wooldridge 2009, 2010). First, according to prior studies, internal hierarchy IT governance, which involves a centralized decision-making process and exerts a tight control over internal IT resources at the corporate level, should correlate with external IT contractual governance, which emphasizes the close monitoring of detailed contracts with service providers (i.e., high correlation between internal hierarchy IT governance and external contractual governance) (e.g., Adler 2001; Park et al. 2017). In addition, internal network IT governance, which focuses on the cooperation and coordination of corporate and divisional ITs to optimize and generate new knowledge and capabilities, is a surrogate for external relational IT governance, which involves collaboration with service providers to generate synergy and unintended gains across firms (i.e., high correlation between internal network IT governance and external relational governance) (e.g., Capaldo 2007; Gopal and Koka 2012; Park et al. 2017). Second, neither of these variables has been directly associated in prior work with outsourcing performance, our DV. However, both mechanisms have been shown to be related to outsourcing performance through legitimacy management (Barret et al. 2008).

First, to test the endogeneity of contractual governance, two-stage estimations were used. Specifically, we computed the residual, η1, from Equation 1 (estimated from Table H-1). We then used η1 as an additional regressor in the equations of outsourcing performance (self-reported data) and total sales (objective data), and reran the research models, respectively. If the residual η1 as the result of Durbin-Wu-Hausman test was statistically insignificant, we cannot reject null hypothesis, indicating that the contractual relationship construct is likely to be exogenous. As reported in Table H-2, results show that contractual governance is indeed exogenous in terms of pragmatic legitimacy, moral legitimacy, cognitive legitimacy, outsourcing performance, and total sales because all residuals η1 were insignificant. Hence, contractual governance is exogenous in our setting.

Equation 1: Contractual Governance = β0 +β1* Project type I + β2* Project type II +β3* Project type III + β4* Project type IV + β5* Project type V +β6* Client industry I + β7* Client industry II + β8* Client industry III + β9* Client industry IV + β10* Client industry V + β11* Project size +β12* Project length +β13* Prior relation +β14* Vendor established year +β15* Vendor reputation +β16* Relative firm size +β17* Time span +β18* Relational governance +β19* Internal hierarchical IT governance +η1(residual)

Table H-1. OLS of Contractual Governance

Variables	Contractual Governance		
	Coef.	*t*	*p*
Project type I (application development & maintenance)	0.033	1.12	0.197
Project type II (network management)	0.041	0.57	0.644
Project type III (IT consulting)	-0.004	-0.18	0.798
Project type IV (data center management)	-0.013	-0.49	0.478
Project type V (help desk activities)	0.013	0.46	0.622
Client industry I (manufacturing)	0.008	0.21	0.864
Client industry II (banking & finance)	0.011	0.37	0.724
Client industry III (insurance & healthcare)	0.004	0.17	0.673
Client industry IV (utility & energy)	-0.032	-0.55	0.559
Client industry V (retail & wholesale)	-0.015	-0.45	0.659
Project size	0.042	1.22	0.201
Project length	-0.013	-0.28	0.604
Prior relation	0.016	0.38	0.744
Vendor established year	-0.027	-0.19	0.735
Vendor reputation	0.005	0.23	0.846
Relative firm size	-0.008	-0.36	0.674
Time span	-0.022	-0.18	0.544
Relational governance	0.487***	7.28	0.000
Internal hierarchy IT governance	-0.045	-0.61	0.646

R^2	0.265

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Table H-2. Results of OLS with Residual of Contractual Governance Included

Variables	Pragmatic Legitimacy	Moral Legitimacy	Cognitive Legitimacy	Outsourcing Performance	Total Sales
Control Variables					
Project type I (application development & maintenance)	0.013	-0.030	-0.014	-0.016	0.032
Project type II (network management)	0.023	0.014	0.022	0.012	-0.005
Project type III (IT consulting)	0.044	0.004	-0.056	0.008	0.029
Project type IV (data center management)	0.006	-0.068	0.031	-0.055	0.029
Project type V (help desk activities)	0.056	-0.033	0.014	0.045	0.021
Client industry I (manufacturing)	-0.016	0.012	0.008	0.017	0.045
Client industry II (banking & finance)	0.008	0.018	-0.005	0.002	0.059
Client industry III (insurance & healthcare)	0.012	0.009	0.015	0.023	0.012
Client industry IV (utility & energy)	-0.004	-0.013	0.026	0.036	0.106
Client industry V (retail & wholesale)	0.047	0.026	0.014	0.026	0.069
Project size	0.053	0.019	-0.038	0.066	0.009
Project length	-0.012	0.009	-0.001	-0.002	-0.087
Prior relation	-0.004	0.035	0.023	-0.019	-0.009
Vendor established year	0.009	0.003	-0.006	0.004	-0.011
Vendor reputation	-0.002	-0.005	0.002	-0.007	-0.003
Relative firm size	-0.011	-0.009	-0.013	-0.005	0.058
Time span	-0.024	0.016	-0.049	-0.044	0.021
η1	0.068	0.089	0.044	-0.041	0.145
Independent Variables					
Contractual governance	-	-	-	-	-
Relational governance	0.448***	0.436***	0.352***	0.071	-0.116
Pragmatic legitimacy	-	-	-	0.242***	0.213***
Moral legitimacy	-	-	-	0.091	0.105
Cognitive legitimacy	-	-	-	0.229***	0.193**
R^2	0.047	0.235	0.163	0.286	0.233

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Second, an endogeneity test of the relationship governance construct was conducted. As shown in Table H-3, we first solved Equation 2 to estimate the residual, η2, and then retested the research model including η2 as an additional regressor in the equations of outsourcing performance (self-reported data) and total sales (objective data). Table H-4 presents the results. Given that the parameter estimation of residuals of relational governance is insignificant, the relational governance construct in our model is also exogenous.

Equation 2: Relational Governance = β0 +β1* Project type I + β2* Project type II +β3* Project type III + β4* Project type IV + β5* Project type V +β6* Client industry I + β7* Client industry II + β8* Client industry III + β9* Client industry IV + β10* Client industry V + β11* Project size +β12* Project length +β13* Prior relation +β14* Vendor established year +β15* Vendor reputation +β16* Relative firm size +β17* Time span +β18* Contractual governance +β19* Internal network IT governance +η2(residual)

Table H-3. OLS of Relational Governance

Variables	Relational Governance		
	Coef.	*t*	*p*
Project type I (application development & maintenance)	0.020	0.78	0.437
Project type II (network management)	0.034	0.93	0.755
Project type III (IT consulting)	-0.008	-0.21	0.893
Project type IV (data center management)	-0.019	-0.38	0.924
Project type V (help desk activities)	0.046	1.07	0.576
Client industry I (manufacturing)	-0.029	-0.74	0.458
Client industry II (banking & finance)	0.016	0.86	0.402
Client industry III (insurance & healthcare)	0.010	0.43	0.316
Client industry IV (utility & energy)	-0.013	-0.73	0.387
Client industry V (retail & wholesale)	0.027	0.87	0.387

Project size	-0.011	-0.83	0.402
Project length	-0.021	-0.75	0.427
Prior relation	-0.044	-1.19	0.225
Vendor established year	0.020	0.91	0.398
Vendor reputation	-0.019	-0.58	0.843
Relative firm size	0.017	0.87	0.391
Time span	0.073	1.06	0.320
Contractual governance	0.459***	7.23	0.000
Internal network IT governance	0.006	0.19	0.871
R^2	0.261		

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Table H-4. Results of OLS with Residual of Relational Governance Included

Variables	Pragmatic Legitimacy	Moral Legitimacy	Cognitive Legitimacy	Outsourcing Performance	Total Sales
Control Variables					
Project type I (application development & maintenance)	0.013	-0.033	-0.015	-0.016	0.036
Project type II (network management)	0.023	0.014	0.022	0.013	-0.002
Project type III (IT consulting)	0.043	0.007	-0.054	0.008	0.035
Project type IV (data center management)	0.006	-0.058	0.038	-0.055	0.028
Project type V (help desk activities)	0.056	-0.039	0.020	0.046	0.017
Client industry I (manufacturing)	-0.014	0.013	0.006	0.017	0.045
Client industry II (banking & finance)	0.006	0.018	-0.008	0.003	0.059
Client industry III (insurance & healthcare)	0.012	0.008	0.015	0.024	0.015
Client industry IV (utility & energy)	-0.004	-0.015	0.029	0.035	0.106
Client industry V (retail & wholesale)	0.050	0.024	0.016	0.026	0.067
Project size	0.052	0.015	-0.037	0.010	0.016
Project length	-0.017	0.004	-0.007	-0.010	0.193
Prior relation	0.026	0.031	-0.056	-0.013	0.114
Vendor established year	0.015	0.009	0.006	0.009	0.015
Vendor reputation	-0.006	-0.019	0.006	-0.005	0.009
Relative firm size	-0.066	-0.002	-0.015	-0.609	0.436
Time span	-0.021	0.040	-0.065	-0.048	0.052
η1	0.051	0.069	0.096	0.127	0.121
Independent Variables					
Contractual governance	0.188**	0.297***	0.094	0.086	0.107
Relational governance	-	-	-	-	-
Pragmatic legitimacy	-	-	-	0.237***	0.210***
Moral legitimacy	-	-	-	0.106	0.153**
Cognitive legitimacy	-	-	-	0.318***	0.205**
R^2	0.048	0.233	0.144	0.267	0.276

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

• H.2 Two-Step GMM and *estat* Endogenous Tests

Out of an abundance of caution, other tests were conducted to confirm whether endogeneity is a serious concern. We ran the endogeneity tests using *estat* endogenous procedure and a two-step GMM procedure as in Baum (2003) and Dong et al. (2017).

First, to test the endogeneity of contractual governance, we conducted the endogeneity test with the two IVs (i.e., internal hierarchical IT governance and internal network IT governance) using the *estat* endogenous procedure in STATA (Stata 2014b). In this procedure, the Durbin test and Wu-Hausman tests are carried out separately (Davidson and MacKinnon 1993; Stata 2014a). In this test, if the p-value is smaller than 0.05, the null hypothesis can be rejected. But, it cannot be rejected when the p-value is greater than 0.05. As our results show that the p-values of both the Durbin test (0.735) and the Wu-Hausman test (0.756) were greater than 0.05, we cannot reject the null hypothesis (i.e., the Ho that the variables are exogenous is supported). In addition, we applied the same procedure to test the endogeneity of relational governance. The result of the *estat* endogenous test reveals that the p-values of the Durbin test (0.745) and the Wu-Hausman test (0.758) were greater than 0.05, indicating that

relational governance is exogenous.

Second, to confirm the results of the *estat* endogenous test, we further adopted the two-step GMM test (Baum et al. 2003; Han and Mithas 2013; Ullah et al. 2018). The results of two-step GMM test show that the p-values were 0.752 for contractual governance and 0.750 for relational governance and thus the null hypotheses cannot be rejected. Therefore, once again, we can conclude that both contractual governance and relational governance are exogenous in our setting.

- **H.3 Reverse Causality Test**

As a first approach to test reverse causality between the three vendor legitimacy factors and outsourcing performance, we formulated a regression equation for each of two possible causal pathways, estimated these equations simultaneously. We then checked on whether or not there was a statistically significant correlation between the error terms of the two equations (Han and Mithas 2013; Spearing et al. 2012; Wooldridge 2009).

We conducted the reverse causality test between vendor pragmatic legitimacy and outsourcing performance. Equation 3 is a regression equation that considers outsourcing performance as a dependent variable and pragmatic legitimacy as an independent variable whereas Equation 4 includes pragmatic legitimacy as a dependent variable and outsourcing performance as an independent variable. The error term μ was computed from Equation 3 and the error term ξ from Equation 4. Then, a correlation test between the error terms μ and ξ was conducted, as shown in Table H-5. The result of this correlation test between the error terms of two regression equations shows that there is no reverse causality between vendor pragmatic legitimacy and outsourcing performance (p-value=0.591).

Equation 3: Outsourcing Performance = β0 + β1*Pragmatic Legitimacy + β2* Project type I +β3* Project type II +β4* Project type III + β5* Project type IV + β6* Project type V +β7* Client industry I + β8* Client industry II + β9* Client industry III + β10* Client industry IV + β11* Client industry V + β12* Project size +β13* Project length + β14* Prior relation +β15* Vendor established year +β16* Vendor reputation +β17* Relative firm size +β18* Time span + μ

Equation 4: Pragmatic Legitimacy = α0 + α1*Outsourcing performance + α2* Project type I + α3* Project type II + α4* Project type III + α5* Project type IV + α6* Project type V + α7* Client industry I + α8* Client industry II + α9* Client industry III + α10* Client industry IV + α11* Client industry V + α12* Project size + α13* Project length + α14* Prior relation +α15* Vendor established year + α16* Vendor reputation + α17* Relative firm size +α18* Time span + ξ

Table H-5. Results of the Error Terms Test between Pragmatic legitimacy and Outsourcing Performance

Variables	Pragmatic Legitimacy	Outsourcing Performance
Legitimacy and Performance		
Outsourcing performance	0.121**	-
Pragmatic legitimacy	-	0.251***
Control Variables		
Project type I (application development & maintenance)	0.021	-0.014
Project type II (network management)	0.010	0.009
Project type III (IT consulting)	-0.039	0.003
Project type IV (data center management)	-0.012	-0.024
Project type V (help desk activities)	0.015	0.028
Client industry I (manufacturing)	-0.009	0.013
Client industry II (banking & finance)	0.002	0.004
Client industry III (insurance & healthcare)	0.015	0.015
Client industry IV (utility & energy)	0.025	0.023
Client industry V (retail & wholesale)	0.017	0.005
Project size	0.031	0.009
Project length	-0.011	-0.012
Prior relation	-0.002	-0.009
Vendor established year	-0.003	-0.017
Vendor reputation	-0.004	-0.005
Relative firm size	-0.006	0.004
Time span	0.019	-0.073

Correlation (*p*-value)	**0.035 (0.591)**

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Likewise, possible reverse causality between vendor moral legitimacy and outsourcing performance was examined based on Equations 5 and 6. As summarized in Table H-6, the analysis shows no reverse causality (p-value=0.439).

Equation 5: Outsourcing Performance = β0 + β1*Moral Legitimacy + β2* Project type I +β3* Project type II +β4* Project type III + β5* Project type IV + β6* Project type V +β7* Client industry I + β8* Client industry II + β9* Client industry III + β10* Client industry IV + β11* Client industry V + β12* Project size +β13* Project length + β14* Prior relation +β15* Vendor established year +β16* Vendor reputation +β17* Relative firm size +β18* Time span + μ

Equation 6: Moral Legitimacy = α0 + α1*Outsourcing performance + α2* Project type I + α3* Project type II + α4* Project type III + α5* Project type IV + α6* Project type V + α7* Client industry I + α8* Client industry II + α9* Client industry III + α10* Client industry IV + α11* Client industry V + α12* Project size + α13* Project length + α14* Prior relation +α15* Vendor established year + α16* Vendor reputation + α17* Relative firm size +α18* Time span + ξ

Table H-6. Results of the Error Terms Test between Moral legitimacy and Outsourcing Performance

Variables	Moral Legitimacy	Outsourcing Performance
Legitimacy and Performance		
Outsourcing performance	-0..098	-
Moral legitimacy	-	-0.082
Control Variables		
Project type I (application development & maintenance)	0.033	-0.022
Project type II (network management)	0.021	0.011
Project type III (IT consulting)	0.028	0.006
Project type IV (data center management)	0.006	-0.029
Project type V (help desk activities)	0.027	-0.015
Client industry I (manufacturing)	-0.013	0.019
Client industry II (banking & finance)	0.009	0.020
Client industry III (insurance & healthcare)	0.015	0.009
Client industry IV (utility & energy)	-0.014	-0.013
Client industry V (retail & wholesale)	0.039	0.026
Project size	0.017	0.021
Project length	-0.032	-0.013
Prior relation	0.014	-0.008
Vendor established year	0.005	-0.007
Vendor reputation	-0.013	-0.009
Relative firm size	-0.008	0.015
Time span	0.055	-0.052
Correlation (*p*-value)	**0.072 (0.439)**	

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

In addition, possible reverse causality between vendor cognitive legitimacy and outsourcing performance was examined using Equations 7 and 8. The results are summarized in Table H-7, indicating that no reverse causality (p-value=0.511).

Equation 7: Outsourcing Performance = β0 + β1*Cognitive Legitimacy + β2* Project type I +β3* Project type II +β4* Project type III + β5* Project type IV + β6* Project type V +β7* Client industry I + β8* Client industry II + β9* Client industry III + β10* Client industry IV + β11* Client industry V + β12* Project size +β13* Project length +β14* Prior relation +β15* Vendor established year +β16* Vendor reputation +β17* Relative firm size +β18* Time span + μ

Equation 8: Cognitive Legitimacy = α0 + α1*Outsourcing performance + α2* Project type I + α3* Project type II + α4* Project type III + α5* Project type IV + α6* Project type V + α7* Client industry I + α8* Client industry II + α9* Client industry III + α10* Client industry IV + α11* Client industry V + α12* Project size + α13* Project length + α14* Prior relation +α15* Vendor established year +α16* Vendor reputation + α17* Relative firm

size +α18* Time span + ξ

Table H-7. Results of the Error Terms Test between Cognitive legitimacy and Outsourcing Performance

Variables	Cognitive Legitimacy	Outsourcing Performance
Legitimacy and Performance		
Outsourcing performance	0..135**	-
Cognitive legitimacy	-	0.192**
Control Variables		
Project type I (application development & maintenance)	-0.013	0.031
Project type II (network management)	0.012	-0.003
Project type III (IT consulting)	0.008	0.029
Project type IV (data center management)	-0.023	0.006
Project type V (help desk activities)	0.016	0.016
Client industry I (manufacturing)	0.024	0.046
Client industry II (banking & finance)	0.007	0.038
Client industry III (insurance & healthcare)	0.015	0.011
Client industry IV (utility & energy)	0.023	0.094
Client industry V (retail & wholesale)	0.038	0.076
Project size	0.043	0.009
Project length	-0.016	-0.003
Prior relation	0.067	0.073
Vendor established year	0.058	0.065
Vendor reputation	-0.014	-0.017
Relative firm size	0.019	-0.020
Time span	0.031	-0.054
Correlation (*p*-value)	**0.053 (0.511)**	

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Based on these analyses for reverse causality between three vendor legitimacy factors and outsourcing performance, we conclude that reverse causality is highly *unlikely.*

As a second approach to reconfirm this inference, we conducted the Durbin-Wu-Hausman analysis without IVs focusing on the relationship between three legitimacy factors and outsourcing performance (Davidson and MacKinnon 1993; Dong et al. 2017). As in H.1 section, two-stage estimations were used. As summarized in Tables H-8~H-13, the results show that all of the three legitimacy factors are exogenous in terms of outsourcing performance, indicating that reverse causality between them is not a serious concern.

Equation 9: Pragmatic Legitimacy = β0 +β1* Project type I + β2* Project type II +β3* Project type III + β4* Project type IV + β5* Project type V +β6* Client industry I + β7* Client industry II + β8* Client industry III + β9* Client industry IV + β10* Client industry V + β11* Project size +β12* Project length +β13* Prior relation +β14* Vendor established year +β15* Vendor reputation +β16* Relative firm size +β17* Time span +β18* Moral legitimacy +β19* Cognitive legitimacy+ η1

Equation 10: Moral Legitimacy = β0 +β1* Project type I + β2* Project type II +β3* Project type III + β4* Project type IV + β5* Project type V +β6* Client industry I + β7* Client industry II + β8* Client industry III + β9* Client industry IV + β10* Client industry V + β11* Project size +β12* Project length +β13* Prior relation +β14* Vendor established year +β15* Vendor reputation +β16* Relative firm size +β17* Time span +β18* Pragmatic legitimacy +β19* Cognitive legitimacy+ η2

Equation 11: Cognitive Legitimacy = β0 +β1* Project type I + β2* Project type II +β3* Project type III + β4* Project type IV + β5* Project type V +β6* Client industry I + β7* Client industry II + β8* Client industry III + β9* Client industry IV + β10* Client industry V + β11* Project size +β12* Project length + β13* Prior relation +β14* Vendor established year +β15* Vendor reputation +β16* Relative firm size +β17* Time span +β18* Pragmatic legitimacy +β19* Moral legitimacy+ η3

Table H-8. OLS of Pragmatic Legitimacy

Variables	Pragmatic Legitimacy		
	Coef.	*t*	*p*
Project type I (application development & maintenance)	0.021	0.85	0.542
Project type II (network management)	0.032	0.49	0.644
Project type III (IT consulting)	-0.007	-0.21	0.782
Project type IV (data center management)	-0.021	-0.53	0.486
Project type V (help desk activities)	0.005	0.28	0.625
Client industry I (manufacturing)	0.008	0.21	0.865
Client industry II (banking & finance)	0.010	0.37	0.723
Client industry III (insurance & healthcare)	0.035	0.61	0.631
Client industry IV (utility & energy)	-0.032	-0.52	0.569
Client industry V (retail & wholesale)	0.006	0.15	0.750
Project size	0.050	0.79	0.433
Project length	-0.018	-0.52	0.604
Prior relation	0.009	0.63	0.435
Vendor established year	0.010	0.72	0.471
Vendor reputation	0.001	0.04	0.972
Relative firm size	-0.006	-0.22	0.823
Time span	-0.028	-0.35	0.730
Pragmatic governance	-	-	-
Moral legitimacy	0.126*	1.65	0.055
Cognitive legitimacy	-0.027	-0.51	0.576
R^2	0.065		

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Table H-9. Results of OLS with Residual of Pragmatic Legitimacy Included

Variables	Outsourcing Performance		
	Coef.	*t*	*p*
Control Variables			
Project type I (application development & maintenance)	0.022	0.85	0.598
Project type II (network management)	-0.062	-0.58	0.646
Project type III (IT consulting)	0.008	0.23	0.788
Project type IV (data center management)	0.017	0.46	0.473
Project type V (help desk activities)	0.020	0.43	0.637
Client industry I (manufacturing)	0.009	0.23	0.815
Client industry II (banking & finance)	-0.020	-0.54	0.712
Client industry III (insurance & healthcare)	-0.005	-0.17	0.677
Client industry IV (utility & energy)	0.051	0.76	0.590
Client industry V (retail & wholesale)	0.010	0.37	0.256
Project size	0.007	0.13	0.923
Project length	-0.005	-0.11	0.887
Prior relation	0.020	0.52	0.537
Vendor established year	0.003	0.39	0.676
Vendor reputation	-0.008	-0.46	0.652
Relative firm size	-0.000	0.01	0.989
Time span	-0.052	-0.81	0.554
$\eta 1$	-0.065	-1.15	0.316
Independent Variables			
Pragmatic governance	-	-	-
Moral legitimacy	0.028	0.47	0.571
Cognitive legitimacy	0.363***	5.83	0.000
R^2	0.289		

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Table H-10. OLS of Moral Legitimacy

Variables	Moral Legitimacy		
	Coef.	*t*	*p*
Project type I (application development & maintenance)	0.031	0.82	0.445
Project type II (network management)	0.025	0.84	0.573
Project type III (IT consulting)	-0.007	-0.25	0.794
Project type IV (data center management)	0.020	0.42	0.625
Project type V (help desk activities)	0.044	1.07	0.877
Client industry I (manufacturing)	0.029	0.74	0.449
Client industry II (banking & finance)	0.023	0.76	0.451
Client industry III (insurance & healthcare)	0.011	0.45	0.328
Client industry IV (utility & energy)	-0.019	-0.74	0.491
Client industry V (retail & wholesale)	0.025	0.87	0.546
Project size	0.018	0.42	0.723
Project length	-0.003	-0.06	0.956
Prior relation	-0.011	-0.27	0.802
Vendor established year	0.005	0.55	0.580
Vendor reputation	-0.016	-0.95	0.354
Relative firm size	-0.000	-0.02	0.998
Time span	0.071	0.92	0.774
Pragmatic governance	0.155*	1.95	0.056
Moral legitimacy	-	-	-
Cognitive legitimacy	0.146*	1.61	0.063
R^2	0.072		

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Table H-11. Results of OLS with Residual of Moral Legitimacy Included

Variables	Outsourcing Performance		
	Coef.	*t*	*p*
Control Variables			
Project type I (application development & maintenance)	0.021	0.86	0.583
Project type II (network management)	-0.056	-0.48	0.548
Project type III (IT consulting)	0.007	0.24	0.788
Project type IV (data center management)	0.027	0.49	0.484
Project type V (help desk activities)	0.032	0.57	0.637
Client industry I (manufacturing)	0.011	0.25	0.855
Client industry II (banking & finance)	-0.017	-0.44	0.698
Client industry III (insurance & healthcare)	-0.015	-0.47	0.677
Client industry IV (utility & energy)	0.053	0.76	0.594
Client industry V (retail & wholesale)	0.004	0.19	0.790
Project size	0.015	0.34	0.771
Project length	-0.006	-0.19	0.832
Prior relation	0.014	0.31	0,756
Vendor established year	0.007	0.59	0.511
Vendor reputation	-0.009	-0.75	0.466
Relative firm size	0.000	0.00	0.967
Time span	-0.042	-0.62	0.670
η2	0.091	1.25	0.421
Independent Variables			
Pragmatic governance	0.231***	4.21	0.000
Moral legitimacy	-	-	-
Cognitive legitimacy	0.398***	6.52	0.000
R^2	0.263		

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Table H-12. OLS of Cognitive Legitimacy

Variables	Cognitive Legitimacy		
	Coef.	*t*	*p*
Project type I (application development & maintenance)	0.062	1.24	0.158
Project type II (network management)	0.041	0.78	0.545
Project type III (IT consulting)	-0.002	-0.19	0.780
Project type IV (data center management)	0.015	0.51	0.585
Project type V (help desk activities)	0.014	0.49	0.551
Client industry I (manufacturing)	0.017	0.45	0.649
Client industry II (banking & finance)	0.008	0.21	0.865
Client industry III (insurance & healthcare)	0.007	0.19	0.772
Client industry IV (utility & energy)	-0.031	-0.56	0.689
Client industry V (retail & wholesale)	0.011	0.37	0.723
Project size	-0.051	-0.86	0.427
Project length	-0.014	-0.37	0.722
Prior relation	0.028	0.43	0.511
Vendor established year	0.009	0.38	0.702
Vendor reputation	0.032	0.57	0.589
Relative firm size	-0.002	-0.10	0.893
Time span	-0.054	-0..89	0.458
Pragmatic governance	-0.031	-0.47	0.669
Moral legitimacy	0.134*	1.32	0.062
Cognitive legitimacy	-	-	-
R^2	0.069		

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Table H-13 Results of OLS with Residual of Cognitive Legitimacy Included

Variables	Outsourcing Performance		
	Coef.	*t*	*p*
Control Variables			
Project type I (application development & maintenance)	0.037	0.87	0.568
Project type II (network management)	0.024	0.83	0.552
Project type III (IT consulting)	0.005	0.61	0.794
Project type IV (data center management)	0.025	0.48	0.647
Project type V (help desk activities)	-0.031	-0.97	0.852
Client industry I (manufacturing)	0.019	0.74	0.443
Client industry II (banking & finance)	0.013	0.83	0.492
Client industry III (insurance & healthcare)	-0.026	-0.64	0.451
Client industry IV (utility & energy)	0.006	0.25	0.814
Client industry V (retail & wholesale)	0.023	0.82	0.546
Project size	-0.005	-0.57	0.842
Project length	-0.008	-0.33	0.726
Prior relation	0.015	0.51	0.678
Vendor established year	0.010	0.46	0.634
Vendor reputation	-0.004	-0.38	0.755
Relative firm size	-0.001	-0.07	0.943
Time span	-0.079	-1.31	0.163
η3	0.067	0.86	0.548
Independent Variables			
Pragmatic governance	0.345***	5.49	0.000
Moral legitimacy	0.035	1.41	0.190
Cognitive legitimacy	-	-	-
R^2	0.273		

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

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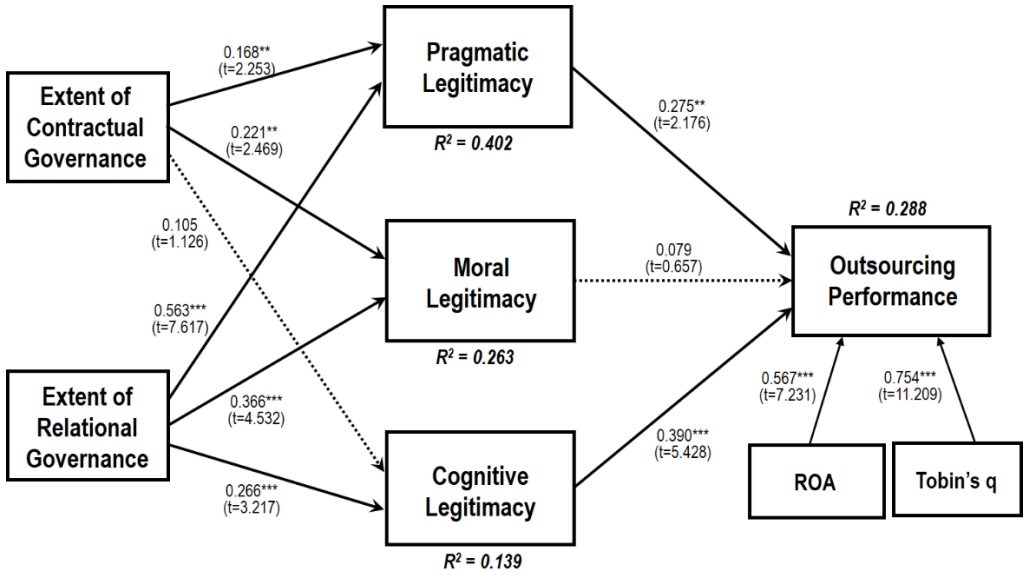
Appendix I: Robustness Checks

• I.1 Testing the Model with Relatively Objective Archival Data

To increase confidence in the empiricism, we also examined a model with relatively objective, comparable measures of outsourcing performance, using archival data collected from a public source of financial performance for our sampled firms. Specifically, to cross check the validity of the self-report measures for both value capture and creation, we collected publicly reported financial data for our sampled firms from the website of the Korea Stock Exchange (http://sm.krx.co.kr). Since the sampling frame of this study was 1,500 larger companies, the 185 organizations in our sample were all listed on the Korean stock market and their financial performance data were found on that website. Through this collation, we created a new dataset having two additioal financial measures for 185 organizations, specifically, ROA and Tobin's q. The first data item, ROA, is a backward-looking accounting metric which signifies a firm's historic efficiency in the short term, similar to value capture in our study. Contrariwise, Tobin's q is a forward-looking measure, one that is suitable for assessing the market value in the long term and highly related to the self-report measures of outsourcing value creation (Chung and Pruitt 1994).

Accordingly, self-reported measures of value capture and value creation were replaced by ROA and Tobin's q, respectively, in a cross-validation analysis. We computed a three-year average value of the ROA and Tobin's q measures from 2014 to 2016 and reran the structural model in AMOS. The analytical results using these financial data were very similar to those in the original analysis that was based on self-report data, as depicted below in Figure I-1. The results also show that the structural model with archival financial data accounted for 28.8% of outsourcing performance, remarkably similar to the explained variance in the original model. Thus, we conclude that this cross-validation analysis shows strong nomological validity and thus further supports the overall credibility of the original empirical findings and its instrumentation (Straub et al. 2004).

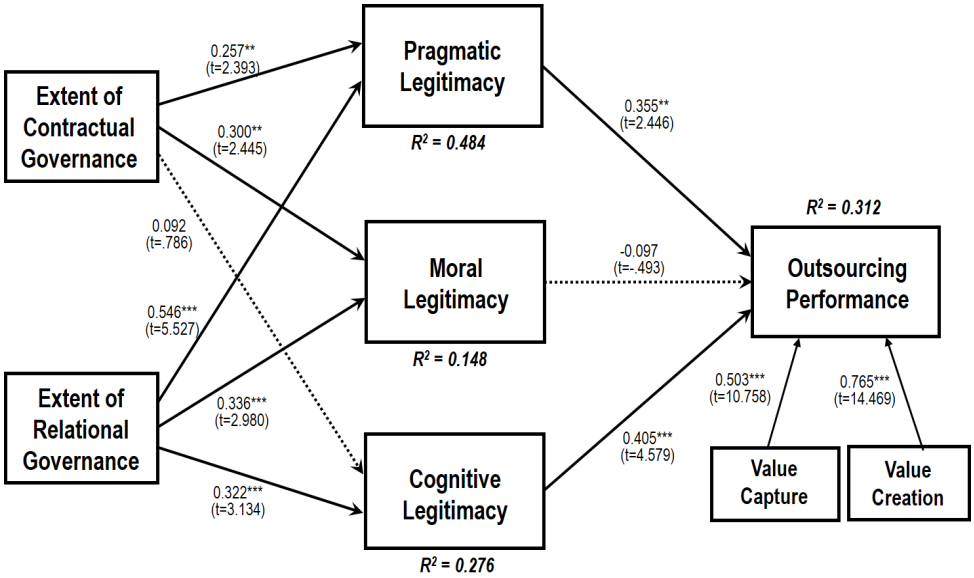


Note: Hypotheses in bold lines were supported; * p < 0.10; ** p < 0.05; *** p < 0.01

Figure I-1. Analytical Results with ROA and Tobin's q

• I.2 Testing Our Model with 100 Randomly Selected Sample

As one more check of the robustness of our research model, we randomly chose 100 out of the 185 full sample and then tested our model using AMOS (Fafchamps and Labonne 2017). But, in this analysis, we decided to drop all control variables to minimize loss of explanatory power due to of the lower sample size. As shown in Figure I-2, results with 100 randomly selected records from the 185 full sample were similar to the original analysis, though there are some relatively minor differences in terms of coefficients and R-square values, as would be expected with a less representative sample.



Note: Hypotheses in bold lines were supported; * p < 0.10; ** p < 0.05; *** p < 0.01

Figure I-2. Analytical Results with Randomly Selected 100 Sample

• I.3 Testing Our Model with *vce* Regression Option

Furthermore, we used the *vce* (robust) regression option in STATA to further check the robustness of the theoretical testing (Stata 2013b). This STATA option assumes heterogeneity and autocorrelation in the OLS estimations and error terms and then adjusts for heterogeneity. After conducting the additional analysis with the *vce* option, the results between the original OLS and the adjusted OLS need to be compared. If there is little change between them, we can say that heterogeneity and autocorrelation are not legitimate threats in our setting.

To evaluate whether or not heterogeneity and autocorrelation exist, we conducted the Breusch-Pagan test as well as the White test. In these tests, if the p-value is significant, the null hypothesis can be rejected. But it cannot be rejected when p-value is insignificant. Results of the Breusch-Pagan test and the White test show that p-values are insignificant, 0.165 and 0.721, respectively, indicating that the null hypothesis cannot be rejected. The inference is thus that heterogeneity and autocorrelation are *not* threats in this study.

To further confirm the conclusion based on the Breusch-Pagan and the White tests, we summarize the results of the adjusted OLS using the *vce* option and that of the original OLS without the heterogeneity adjustment in Tables I-1 and I-2, respectively. As both Tables show very similar results, we reconfirm that there is no serious heterogeneity and autocorrelation in our model.

Table I-1. Adjusted heterogeneity in OLS for Outsourcing Performance

Variables	Outsourcing Performance			
	Coef.	*Robust (Std .Err.)*	*t*	*p*
Control Variables				
Project type I (application development & maintenance)	-0.024	0.022	-0.68	0.356
Project type II (network management)	0.012	0.018	0.30	0.583
Project type III (IT consulting)	0.034	0.031	0.73	0.754
Project type IV (data center management)	0.003	0.018	0.03	0.923
Project type V (help desk activities)	0.016	0.022	0.11	0.821
Client industry I (manufacturing)	0.030	0.029	0.54	0.546
Client industry II (banking & finance)	-0.015	0.017	-0.31	0.456
Client industry III (insurance & healthcare)	-0.026	0.019	-0.48	0.426
Client industry IV (utility & energy)	0.021	0.020	0.64	0.672
Client industry V (retail & wholesale)	0.017	0.021	0.29	0.577
Project size	0.017	0.043	0.40	0.692
Project length	-0.003	0.021	-0.21	0.827
Prior relation	-0.029	0.034	-0.95	0.378

Vendor established year	-0.018	0.033	-0.90	0.355
Vendor reputation	-0.006	0.010	-0.21	0.802
Relative firm size	0.004	0.018	0.15	0.851
Time span	-0.061	0.047	-0.19	0.211
Independent Variables				
Contractual governance	-0.054	0.051	-0.95	0.256
Relational governance	0.113	0.070	1.64	0.123
Pragmatic Legitimacy	0.225***	0.067	3.44	0.001
Moral Legitimacy	-0.055	0.051	-1.23	0.262
Cognitive Legitimacy	0.335***	0.066	4.36	0.000
R^2	0.286			

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Table I-2. Original OLS for Outsourcing Performance without Heterogeneity Adjustment

Variables	Outsourcing Performance			
	Coef.	***Robust (Std .Err.)***	***t***	***p***
Control Variables				
Project type I (application development & maintenance)	-0.022	0.019	-0.60	0.377
Project type II (network management)	0.015	0.017	0.27	0.590
Project type III (IT consulting)	0.024	0.028	0.78	0.785
Project type IV (data center management)	0.019	0.027	0.25	0.823
Project type V (help desk activities)	0.035	0.039	0.58	0.854
Client industry I (manufacturing)	0.025	0.029	0.59	0.558
Client industry II (banking & finance)	-0.022	0.018	-0.29	0.470
Client industry III (insurance & healthcare)	-0.029	0.018	-0.50	0.427
Client industry IV (utility & energy)	0.021	0.020	0.64	0.684
Client industry V (retail & wholesale)	0.032	0.032	0.37	0.582
Project size	0.020	0.045	0.43	0.689
Project length	-0.008	0.026	-0.22	0.834
Prior relation	-0.018	0.031	-0.54	0.280
Vendor established year	-0.032	0.041	-0.89	0.414
Vendor reputation	-0.005	0.011	-0.24	0.820
Relative firm size	0.011	0.023	0.19	0.889
Time span	-0.062	0.053	-1.19	0.219
Independent Variables				
Contractual governance	-0.059	0.055	-0.93	0.282
Relational governance	0.115	0.070	1.64	0.102
Pragmatic Legitimacy	0.243***	0.043	3.74	0.001
Moral Legitimacy	-0.048	0.044	-1.02	0.287
Cognitive Legitimacy	0.343***	0.065	5.36	0.000
R^2	0.289			

. Note: * p < 0.10, ** p < 0.05, *** p < 0.01

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Appendix J: Analysis of Mediation Effects

Since our model posited that three types of vendor legitimacy mediated the impact of the two governance types on outsourcing performance, we tested six mediated paths in two different ways, as shown in Table J-1.

First, we compared the research model that proposed full mediation against a competing model that proposed both direct and mediated effects (i.e., a partially mediated model among outsourcing governance, vendor legitimacy and outsourcing performance). The two models are nested and the competing model has one more path than the research model (from two outsourcing governance types to outsourcing performance). The magnitude and significance of the difference in the R^2 statistics of the two models reflect the increased explanation of the dependent variable (outsourcing performance) by the inclusion of the direct link. The significance of the extra path is assessed using a procedure similar to that employed to test nested models in stepwise linear regression (Subramani 2004). Accordingly, the f^2 statistic, which is based on the difference in R^2 between the two models, was first computed and then used to compute the pseudo-F statistic[1](Chin et al. 2003).

As shown in Table J-1(a), the effect size (f^2) of contractual governance on outsourcing performance was small [(0.303-0.295) / (1-0.303)] = 0.011) with a pseudo-F statistic of 1.974 and that of relational governance on outsourcing performance was likewise small [(0.295-0.293) / (1-0.295)] = 0.002 with a pseudo-F statistic of 0.000 (Cohen 1988). This indicates that the research model (fully mediation model) is preferred to the two competing models that include the direct paths to outsourcing performance from contractual governance [Row 1 in Table J-1(a)] and from relational governance [Row 2 in Table J-1(a)]. Thus, there appear to be no significant direct effects between two types of outsourcing governance and outsourcing performance. That is to say, vendor legitimacy fully mediates the effects of the two types of outsourcing governance on outsourcing performance.

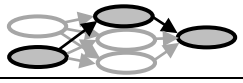
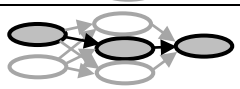
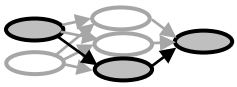
Table J-1. Results of the Mediations Tests

(a) Mediation Test Results using Nested Model Comparison

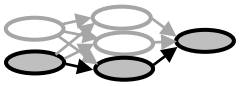
Direct Path	R^2 in Fully Mediated Model (no direct path)	R^2 in Partially Mediated Model (with direct path)	f^2 value	Pseudo F F(1,197)
Contractual Governance → Outsourcing Performance	0.295	0.303	0.010	1.974*
Relational Governance → Outsourcing Performance	0.293	0.295	0.000	0.000**

. Note: * Not significant at p=0.05 level; ** Not significant at p=0.01 level

(b) Sobel Test Significance of Mediated Paths from Outsourcing Governance to Outsourcing Performance

Mediated Path	Graphical Representation	Z-value	p-value
Contractual Governance → Pragmatic Legitimacy → Outsourcing Performance		3.575***	0.000
Relational Governance → Pragmatic Legitimacy → Outsourcing Performance		3.394***	0.000
Contractual Governance → Moral Legitimacy → Outsourcing Performance		3.185***	0.001
Relational Governance → Moral Legitimacy → Outsourcing Performance		3.270***	0.001
Contractual Governance → Cognitive Legitimacy → Outsourcing Performance		1.926*	0.052

[1] The formula for computing f^2 is $(R^2_{\text{partial mediation}} - R^2_{\text{full mediation}})/(1-R^2_{\text{partial mediation}})$. The pseudo F statistic is computed using the formula f^2*(n-k-1), with 1, (n-k) degrees of freedom where n is the sample size and k is the number of constructs in the model (Chin et al. 2003). According to Cohen (1988), an effect size of 0.02 is small, 0.15 is medium, and 0.35 is large.

Relational Governance → Cognitive Legitimacy → Outsourcing Performance		4.259***	0.000

. Note: * p < 0.10; ** p < 0.05; *** p < 0.001

Second, to substantiate our findings of the mediation effects of vendor legitimacy, a Sobel test was conducted (Baron et al. 1986; Sobel 1982). This technique examines whether a mediating variable carries a statistically significant influence of an independent variable on a dependent variable by computing the ratio of the mediator path to its estimated standard error. If a p-value for this ratio, which is computed in reference to the standard normal distribution, is significant, we can conclude that three types of vendor legitimacy (pragmatic legitimacy, moral legitimacy and cognitive legitimacy) mediate the link between two governance types (contractual governance and relational governance) and outsourcing performance. As presented in Table J-1(b), all three indirect effects of two governance types on outsourcing performance via vendor legitimacy were significant at $p < 0.10$ and $p < 0.001$, as indicated by the Sobel test. The results suggest that pragmatic legitimacy statistically mediated the relationships between the two outsourcing governance types and outsourcing performance ($z = 3.575$, $p = 0.000$; $z = 3.394$, $p = 0.000$) [i.e., Rows 1 and 2 in Table J-1(b)]. Moral legitimacy also significantly mediated the link between the two types of outsourcing governance and outsourcing performance ($z = 3.185$, $p = 0.001$; $z = 3.270$, $p = 0.001$) [i.e., Row 3 and 4 in Table J-1(b)]. Finally, the relationships between the two outsourcing governance types and outsourcing performance were mediated by vendor cognitive legitimacy ($z = 1.926$, $p = 0.052$; $z = 4.259$, $p = 0.000$) [i.e., Rows 5 and 6 in Table J-1(b)].

Overall, the results of these six mediation tests suggest that these three types of vendor legitimacy (pragmatic legitimacy, moral legitimacy and cognitive legitimacy) *fully mediate* the effects of the two types of outsourcing governance (contractual governance and relational governance) on outsourcing performance.

References

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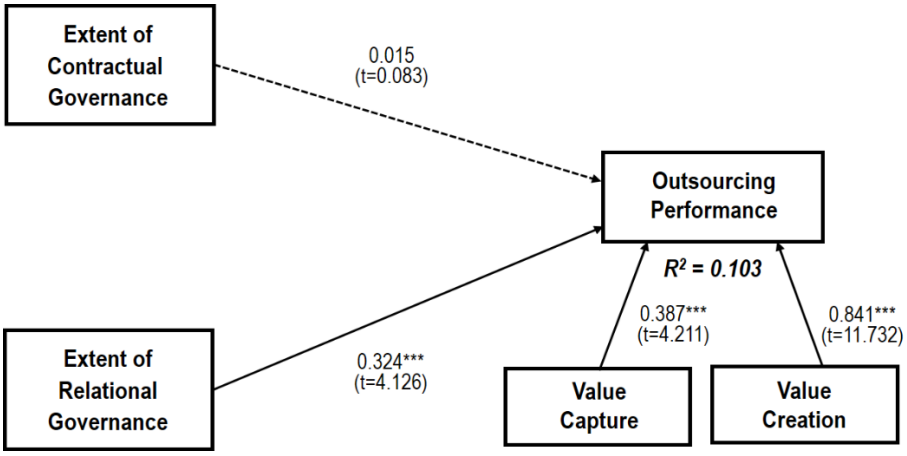
Appendix K: Analysis of Direct and Moderation Models

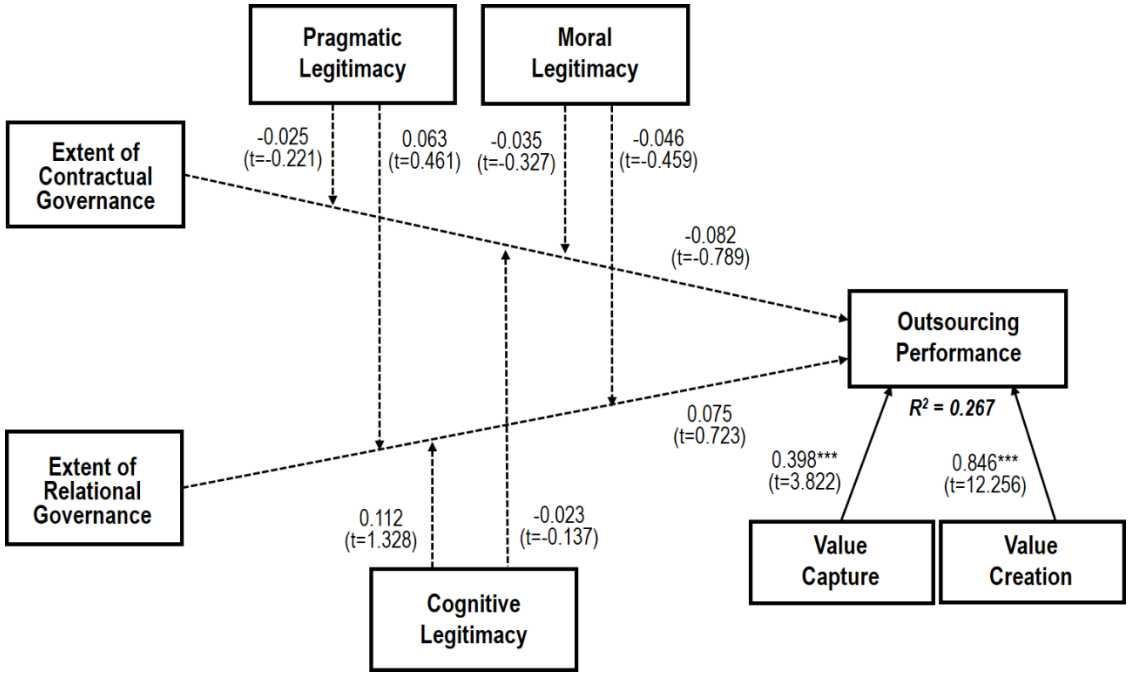
This study makes an argument that the relationships between two types of outsourcing governance (contractual governance and relational governance) and outsourcing performance are mediated by vendor pragmatic legitimacy, vendor moral legitimacy and vendor cognitive legitimacy. The analytical results show that most of the hypotheses are strongly supported.

To examine whether the mediation model proposed in this study is better than rival models (specifically, (1) a direct model that links two types of outsourcing governance with outsourcing performance without any mediators and (2) a moderation model where three types of vendor legitimacy moderate the relationships between two types of outsourcing governance and outsourcing performance), we performed additional analyses, as summarized in Figures K-1 and K-2.



Note: Hypotheses in bold lines were supported; * p < 0.10; ** p < 0.05; *** p < 0.01

Figure K-1. Analytical Results of the Direct Model



Note: Hypotheses in bold lines were supported; * p < 0.10; ** p < 0.05; *** p < 0.01

Figure K-2. Analytical Results of the Moderation Model

The results show that the number of significant paths in the mediation model (seven out of nine paths as shown in Figure 2) is much higher than those in the direct model (only one out of two paths in Figure K-1) and the

moderation model (none out of eight paths in Figure K-2). Findings indicate that only 50% and 0% of the paths suggested in the direct model and in the moderation model, respectively, are supported. In particular, the moderation effects of vendor pragmatic legitimacy, vendor moral legitimacy, and vendor cognitive legitimacy on the relationships on governance strategies and outsourcing performance are not significant at all. In addition, the R^2 for outsourcing performance in the mediation model (0.296) is three times higher than that of the direct model (0.103). Also, the R^2 of outsourcing performance in the moderation model (0.267) is lower than that of the mediation model (0.296), and the mediation model is superior in terms of percentage of the model paths that are significant. Therefore, we believe that the mediation model developed in this study best explains the role of outsourcing governance strategy with vendor legitimacy in predicting outsourcing performance.

Appendix L: Interaction Analysis of Two Governance Types

In the outsourcing literature, two common governance strategies (i.e., contractual governance and relational governance) are widely identified for managing interorganizational outsourcing activities between a client and its vendor, particularly during the post-outsourcing stage. Although the two governance strategies are conceptually independent, in reality organizations can adopt a wide range of hybrid forms between contractual governance and relational governance strategies. In other words, organizations may not typically embrace either a pure contractual governance strategy or a relational governance strategy. The main concern of organizations can be which strategy, contractual governance or relational governance, is the dominant governance approach in managing outsourcing relationships and activities with their vendors.

In this sense, although the respondents of this study were asked to evaluate the measurement items of contractual governance and relational governance strategies by considering their dominant governance approach, it is possible that there exists a certain level of interaction between two governance strategies. Thus, in addition to the VIF test to check the multicollinearity between the two governance strategies, it is worthwhile to examine their interaction effect on three vendor legitimacy factors as well as on outsourcing performance.

As summarized in Figures L-1 and L-2, the results show that the interaction effects between contractual governance and relational governance are not positively significant in the mediation model developed in this study and in the direct model proposed in the existing outsourcing literature. Furthermore, path coefficient and R square values in Figures L-1 and L-2 are similar to, even lower than those in Figure 2, in spite of the addition of the interaction between contractual governance and relational governance strategies. Thus, we conclude that there are no remaining issues for distinguishing between two governance strategies, both conceptually and statistically.

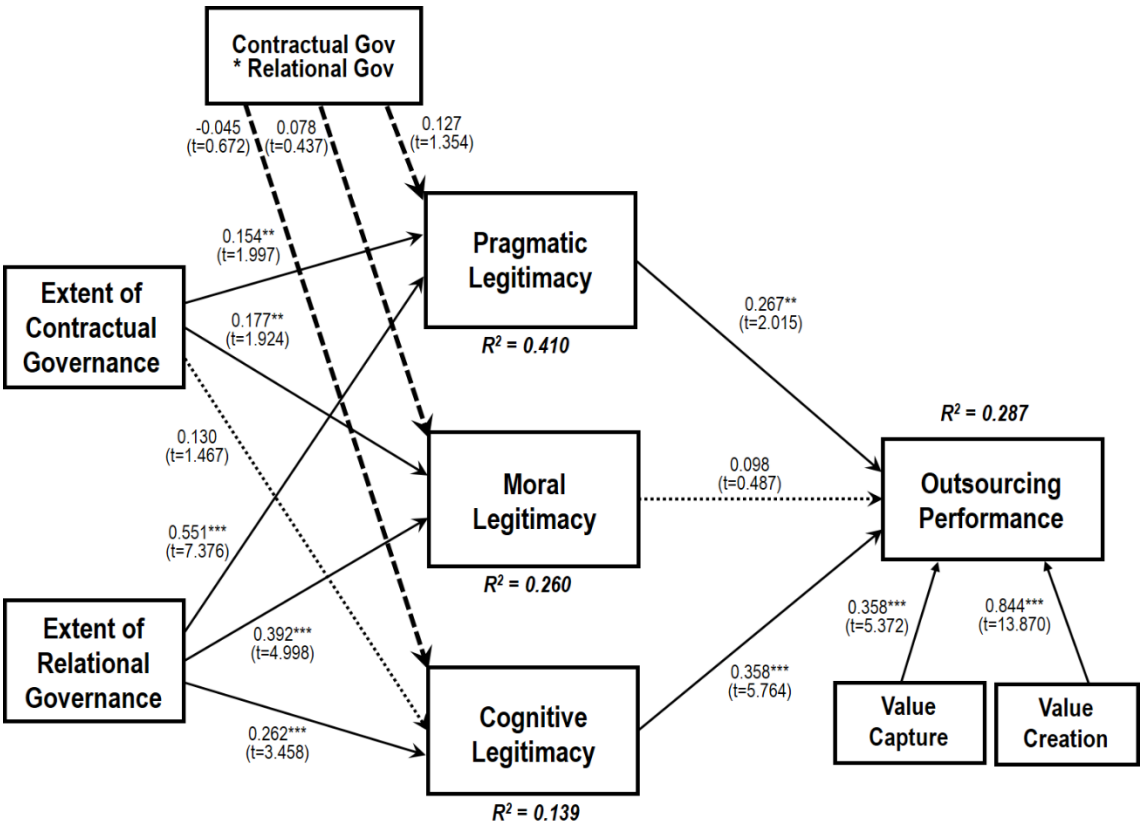


Figure L-1. Interaction Effect between Two Governance Types in the Mediation Model
Note: Hypotheses in bold lines were supported; * p < 0.10; ** p < 0.05; *** p < 0.01

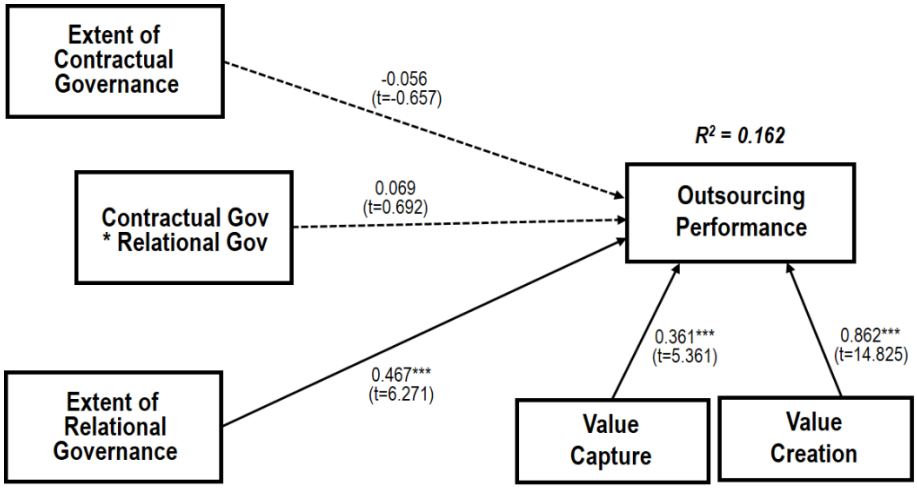


Figure L-2. Interaction Effect between Two Governance Types in the Direct Model

Note: Hypotheses in bold lines were supported; * p < 0.10; ** p < 0.05; *** p < 0.01